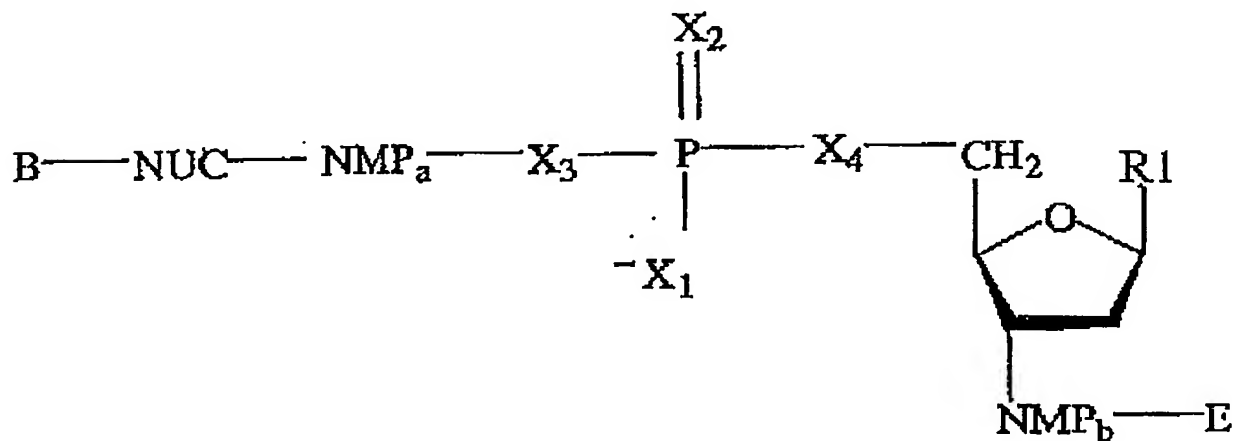


## Claims:

1. Vaccine for preventing viral infections comprising

- an antigen,
- a peptide comprising a sequence  $R_1\text{-XZXX}_N\text{XZX-R}_2$ , whereby N is a whole number between 3 and 7, preferably 5, X is a positively charged natural and/or non-natural amino acid residue, Z is an amino acid residue selected from the group consisting of L, V, I, F and/or W, and  $R_1$  and  $R_2$  are selected independantly one from the other from the group consisting of -H,  $\text{-NH}_2$ ,  $\text{-COCH}_3$ ,  $\text{-COH}$ , a peptide with up to 20 amino acid residues or a peptide reactive group or a peptide linker with or without a peptide;  $\text{X-R}_2$  may be an amide, ester or thioester of the C-terminal amino acid residue of the peptide ("Peptide A"), and
- an immunostimulatory oligodeoxynucleic acid molecule (ODN) having the structure according to the formula (I)



wherein

R1 is selected from hypoxanthine and uracile,

any X is O or S,

any NMP is a 2' deoxynucleoside monophosphate or monothiophosphate, selected from the group consisting of deoxyadenosine-, deoxyguanosine-, deoxyinosine-, deoxycytosine-, deoxyuridine-, deoxythymidine-, 2-methyl-deoxyinosine-, 5-methyl-deoxycytosine-, deoxypseudouridine-, deoxyribosepurine-, 2-amino-deoxyribosepurine-, 6-S-deoxyguanine-, 2-dimethyl-deoxyguanosine- or N-isopentenyl-deoxyadenosine-monophosphate or -monothiophosphate,

NUC is a 2' deoxynucleoside, selected from the group consisting of deoxyadenosine-, deoxyguanosine-, deoxyinosine-, deoxycytosine-, deoxyinosine-, deoxythymidine-, 2-methyl-deoxyuridine-, 5-methyl-deoxycytosine-, deoxypseudouridine-, deoxyribosepurine-, 2-amino-deoxyribosepurine-, 6-S-deoxyguanine-, 2-dimethyl-deoxyguanosine- or N-isopentenyl-deoxyadenosine,

a and b are integers from 0 to 100 with the proviso that a + b is between 4 and 150, and

B and E are common groups for 5' or 3' ends of nucleic acid molecules ("I-/U-ODN").

2. Vaccine according to claim 1, characterised in that it further contains an  $Al(OH)_3$  adjuvant.

3. Vaccine according to claim 1 or 2, characterised in that said antigen is a viral antigen, preferably an influenza, especially a haemagglutinin antigen or a neuraminidase antigen, HCV or HBV, HIV, HPV or JEV antigen, a combined antigen or a combination of one or more of these antigens.

4. Vaccine according to any one of claims 1 to 3, characterised in that it further contains a polycationic peptide.

5. Vaccine according to any one of claims 1 to 4, characterised in that said Peptide A is  $KLKL_5KLK$  and said I-/U-ODN is oligo d(IC)<sub>13</sub>.

6. Vaccine according to any one of claims 1 to 5, characterised in that it further contains an oligodeoxynucleotide containing a CpG-motif.
7. Vaccine according to any one of claims 1 to 6, characterised in that it further contains a polycationic peptide and an oligodeoxynucleotide containing a CpG-motif.
8. Use of a combination of Peptide A and a I-/U-ODN, both as defined in claim 1, to improve the protective efficacy of a vaccine against viral infection, especially against an infection with influenza virus, HBV, HCV, HPV, HIV or JEV.
9. Use of a combination of Peptide A and a I-/U-ODN, both as defined in claim 1, to improve the antigen-specific type 1 response, especially IgG2-antibody response or IFN-gamma response, of a vaccine against viral infections, especially infections with influenza virus, HBV, HCV, HIV, HPV or JEV, and at the same time preserving or preferably also increasing the type 2 response, especially IgG1-antibody response or interleukin 4 (IL 4) response, of said vaccine.